DOCUMENT RESUME

ED 388 038 FL 023 276

AUTHOR	Bierschenk, Bernhard
TITLE	The Tacitness of Tacitus. A Methodological Approach to European Thought. No. 46.
INSTITUTION	Lund Univ. (Sweden). Cognitive Science Research.
REPORT NO	ISSN-0281-9864
PUB DATE	93
NOTE	36p.
PUB TYPE	Viewpoints (Opinion/Position Papers, Essays, etc.) (120)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Classical Literature; *Cognitive Mapping; Danish; English; Foreign Countries; French; German; Latin; *Metalinguistics; Swedish; *Text Structure; Uncommonly Taught Languages
IDENTIFIERS	Sweden

ABSTRACT

This study measured the analysis of verbal flows by means of volume-elasticity measures and the analysis of information flow structures and their representations in the form of a metaphysical cube. A special purpose system of computer programs (PERTEX) was used to establish the language space in which the textual flow patterns occurred containing the perspective and objective invariants. This system was applied to Tacitus' Germania as well as five different translations of the Latin text. Results demonstrate that the texts can be contrasted on the basis of six different metaphysical cubes containing the boundary conditions. Kinetic flow patterns were also coupled to kinematic flow patterns to demonstrate if and to what extent predictions can be made over levels of analysis. The outcome was a similitude between degree of forcefulness in text writing and degree of defensive thinking. A "limes of thought" is demonstrated between Swedish, Danish, German on one hand and Ancient Roman, French, and British on the other. Appendix includes texts used and results from text surface feature sorting. (Contains 18 references.) (Author/NAV)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 388 038

The Tacitness of Tacitus
A Methodological Approach to European Thought

Bernhard Bierschenk

1993 No. 46

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
A. Bjerstedt
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

Cognitive Science Research
Lund University
Sweden

Postal address

Cognitive Science Research
P.O. Box 7080
S-220 07 LUND
SWEDEN

Editor

Bernhard Bierschenk
Department of Psychology
Lund University

Adm. editor

Helge Helmersson
Department of Business Adm.
Lund University

BEST COPY AVAILABLE

The Tacitness of Tacitus
A Methodological Approach
to European Thought

Bernhard Bierschenk

1993 **No. 46**

Cognitive Science Research
Lund University
Sweden

Postal address

Cognitive Science Research
P.O. Box 7080
S-220 07 LUND
SWEDEN

Editor

Bernhard Bierschenk
Department of Psychology
Lund University

Adm. editor

Helge Helmersson
Department of Business Adm.
Lund University

Abstract

In the present study, emphasis is put on two kinds of measurement. One concerns the analysis of verbal flows by means of Volume-Elasticity measures. The other is directed toward the analysis of information flow structures and their representation in the form of a Metaphysical Cube. Because information transaction cannot be studied without an emphasis on the text producer's text building behaviour, his intended and oriented schematising as unitizing activity has been focused upon. To get this problem under experimental control, Perspective Text Analysis (PTA) has been instrumental in tracing the transformations involved in the aggregation of (dis)joint textual elements into systems that are characterised by particular topological profiles specifying boundary conditions. A special purpose system of computer programs (PERTEX) is used for establishing the language space in which the textual flow patterns occur containing the perspective and objective invariants. By applying this system to Tacitus' Germania as well as five different translations of the Latin text, it is shown that they can be contrasted on the basis of six different Metaphysical Cubes containing the boundary conditions. Finally kinetic flow patterns have been coupled to kinematic flow patterns with the purpose of demonstrating whether and to what extent predictions can be made over levels of analysis. The similitude between degree of forcefulness in text writing and degree of defensive thinking is the remarkable outcome. Moreover, a "limes of thought" is demonstrated between Swedish, Danish, and German on one hand and Ancient Roman, French, and British on the other.

A long tradition in science and the philosophy of language asserts that natural language expressions are insufficient in allowing anyone to precisely and completely express his knowledge. The solution of the problem proposed by philosophers, mathematicians and computer scientists has been to view language as a complex system that can be described on the basis of facts derived from simple linguistic forms. It follows that the dominating linguistic aspects of language as system have to be put into canonical form for operations in a universe. The attempts to develop a computational semantics in the form of procedural definitions of boundary conditions for describing elemental facts of the world have to be viewed within the framework of hierarchically arranged linguistic elements. The basic assumption underlying computational approaches is that language behaviour can be determined by a central pattern computer using homogeneous and linear passing time as well as invisible extending distances.

A theoretical but non-qualifyable contra-position has been taken by Polanyi and Prosch (1976, pp. 70-71, 73). They give a phenomenological description of the notion "tacit" which is surrounded by all possible "clouds of intensions" (Hartman, 1967, p 34). Their aim was to bring about the right speculations about knowledge through emotional provocation of how one should think about the notion "knowledge". This dialectic analysis is intimately related to "intrinsic interests" and divisions without limit. What is missing in their argumentation is an understanding of "tacit" as something that is the outcome of the "operation of informational laws" (Gibson, 1979; Kugler & Turvey, 1987).

The origin of the notion "tacit" goes back to Rome's greatest historian. With some uncertainty, his Christian name has been reported to be Publius or Gaius. More certain is his surname Cornelius. Especially certain is his byname Tacitus. Interestingly, the byname characterises him with respect to his mode of expression. Since he has been named Rome's most silent or **thoughtful thinker** and monumental breaker of new ground, his work should be made the natural starting point for a *demonstrative definition* of thought. Fortunately, the fringe of Tacitus' Germania includes not merely The Netherlands and Denmark but also Sweden (= the Suiones). This gives an opportunity to study his view on "Swedish citizenship" which is an expression of the "right to have rights". It is nothing less than the nucleus of civilisation. Consequently, a civilised society grants its members the right to have rights. Tacitus has been conceived of as a person with an unusual inclination to write in a personal manner on peoples' opportunities and freedom of choice. But he has also been viewed as an extraordinary psychologist who has put the intentions of the person in the centre of his verbal portrait of private, public and collective objectives. Tacitus is conspicuous for his success in mastering synthesis in his description of Germania. Inherent in Tacitus' discourse on the Suiones is a conception of knowing which results in a very different informational characterisation compared to the classical conception of knowledge as an aggregate of almost infinitely divisible classifications.

Experiment

Method

What concerns the reader of Tacitus the most seems to be the tacit orientation in this classical text. Intimately connected with this concern is the individual translator's ability to develop a genuine feeling for Tacitus' view of what is right or wrong and a capacity to adopt his perspective on the laws and regulations of the described civilisation. This ability seems to be manifested in the grammatical translation of Tacitus' text on the Suiones. The realism in various discourses on the original text is itself dependent on previous knowledge about the civilisation of Rome and of the particular translator's opinion on the accuracy of Germania. The fact that the relation between previous knowledge and textual relations can change is interpreted as meaning that the individual translator changes his perspective.

The research issue concerns the realness of observed differences in relation to the individual translator's ability to perspectivate experience and to extract invariants out of a de-

scription of what is prototypic. Variations in schematising and variations in the contexts of translation together with their covariations and interactions are expected to give rise to changes in the characterising topological configurations. Being capable of discovering the absolute termini (limits) and structural relations would provide the key to thoughtful thinking. Moreover, these termini would serve as points of departure for its elaborated articulation and differentiation and thus, its precise description through systemic deduction. But the terms for systemic deduction cannot be synthesised without an active inquiring agent who has an understanding of the rationale of civilised behaviour.

By applying PTA (B. Bierschenk, 1993) to Tacitus' Germania as well as five different translations of the Latin text mentioned, it will be shown that they can be contrasted on the basis of different geometric profiles or boundary conditions. Accordingly, the kinematic flow patterns will be discussed with respect to variations in number and configuration of their singularities. It is argued that the affordances put into languages of translation are directly perceived and that, whereas they do not cause a displacement they constrain or control it. The importance of Tacitus as synthesiser lays in his mediative and contemplative discourse. The discourse gives expression to his capacity of entwining conceived objectives with features heavily loaded with subjectivity. This implies that the nature of Germania, its sternness and ethical devotion can be processed and tested with respect to the path he has taken in his text building. But finding a test solution is dependent on the way the perceived relations between his cognitive abilities and his transcending text building behaviour have been co-ordinative. Entwined in his geographical surroundings he transcends into the language space which is functional (I. Bierschenk, 1992 a, b). Entwining and dynamic linkage are characteristic of this transcending behaviour. Here, text building has the dissipative characteristics of thermodynamics.

Subjects

For the purpose of measuring the effects of making experience by reading Tacitus it becomes necessary to introduce the experimental subjects in order to observe their developmental path in rewriting Tacitus' original text. The natural and selective choice of subjects appears to be from a set of individuals that has critical and domain specific knowledge. It should be apparent that a native Swede in command of the Latin language should be the natural choice.

As a member of its prototypic society, the subject perceives the affordances of the civilisation directly. Therefore, the single individual is the natural starting point in formulating observations into natural language expression. The most specific characteristic aspect of an individual's discourse is its need for transcendence. Because the act of rhythmic re-writing is a specific mode of resource or energy consumption, its textual units must also be specific modes. The result of this text building behaviour is the need of functional diversification transcending over levels as opposed to copying or levelling up propositions on the basis of some generalisation principle.

Materials

The Latin text used, has been taken from the 8th Teubner edition of Halm, Andresen and Koestermann, Chapter 44, Sections two and three, printed in 1957. By recognising certain dependency relations between the persons who have worked on Tacitus' Germania it became apparent that the chosen Swedish edition (Önnerfors, 1960) was produced on the basis of the "normgiving" German edition. Because the Swedish version originated from the German text of Germania, published by Eugen Fehrle and revised by Richard Hunnerkopf in 1959, it was selected together with a Danish edition (Bruun & Lund, 1978). Moreover, for comparison purposes, the English (Hutton, 1958) and French (Perret, 1962) versions were included,

because these have been published either simultaneously or shortly after the German one. The Latin text and its different versions are given in Appendix 1.

Design and Procedures

The problem of co-ordinating textual forms, competition between alternative textual elements and co-operation over levels in text building has been studied first with reference to the Swedish version. Emphasising the study of change over translation required an analysis of the Latin version to come next. Especially, as the Swedish version builds on the German version, it became important to study the significance of the English one. For comparison, it was but a small step to include also the French version. Thus, the sequential order of processing was (1) Swedish, (2) Latin, (3) German, (4) English, (5) French, and (6) Danish. Concerning the individual text versions, there is an obvious double description involved. From an ecological point of view, the Latin text is an expression of the text producer's ability to incorporate his own experiences and conceptions into the text. When the resulting text shall be understood by somebody else, its function becomes changed from being expression of conceptualized experience and observations to becoming the context of making experience and observations. Thus, verbal expressions in the Latin text constitutes the perceptual object for recycling text building behaviour and sensible incorporation of conceived contextual invariants.

The goal of the experiment is to compare the different versions of Tacitus. Each individual text provides a unique textual context for expressing conceived morphological properties of the environment at the conceptual level. Extracting the informational invariants underlying its basic theme can be seen as a continuous displacing through which the transformational invariants, specifying the nature of change, can be detected. Moreover, the thematic structure can be reflected through the identity of the structure undergoing change.

Helmersson (1992) developed PTA into PERTEX which is a special purpose system of computer programs. It establishes the language space in which the textual flow patterns occur containing the perspective and objective invariants. PERTEX is designed on the basis of an unambiguous identification of textual agents and agencies. Compared to common text processing systems it provides for the establishment of a radically different architectural and functional configuration. Further, it manifests a series of structures and coupled functions of growing complexity that is hierarchical in character. It has the potential of leading to a major breakthrough in the study of language and thought. The promise is an entirely new approach to the study of consciousness and possibly "human thought" in general.

Results

The Kinetics of Text Building

Sensibility to the properties of one's body and sensibility to the properties of the environment as indicated by the way one uses his body may be identified with the fundamentals of ecological perception and thus, with haptic perceptual systems as described by Gibson (1966). Likewise, the perceptual system involved in the guidance of rhythmic text building behaviour may be conceived of as *virtual* haptic perceptual systems. These systems may be identified with the *meta-physical sensitivity*, i. e. mental responsibility or sensibility of a person both to the properties of his **body of language** and the **use** of this body in reflecting himself and his environment. For simplicity, the layout of the potentials acting on this body will be discussed as *Metaphysical Cube*.

The verbal flow like optical flow and energy flow can function as information on constraints that act on the forces that produce the verbal flow. Through perceptual inclinations with corresponding transformation the Metaphysical Cube undergoes time-varying distortions. For any language body the flow rate is different. This is a function of only two types of potentials that can operate. Conceptual depth or "gravity" on one hand and flexibility or cognitive movement ("displacement") produce the flow in various sections of texture of this

body. Both, the force and depth potentials are pointing toward variation in elasticity. Due to variations in the subjects' verbal flow which is bound to the individual's cognitive movement per unit time, proportional variations may suggest a powerful main effect.

The texture of the language body may be characterised by strain marking the intense of tensile strength in the elements that is present in this body. Because any particular body is normally immersed in a field of tension, the body's texture will show greater distortions the higher the tension grows, relative to the layout of the conceptual potentials. Having forced the process of writing into a certain direction, puts sheer on the textual elements which cause the cognitive movement to deviate from a course. This powerful condition has influences. The course of development will be constrained by the timing conditions of the verbal flow. Precisely how this may influence the process of transforming verbal flows from the kinetic (micro) to the kinematic (macro) frame will be identified by studying its Volume-Elasticity. The use of the six versions of Tacitus' Germania supply the frame of reference for the results presented in Table 1. Each single text represents a particular writing style and consequently, a unique context for a quantitative expression of the degree to which the dissipation of verbal flows are governed by boundary conditions or are concentrated. Table 1 gives the overall evaluation of the relationship between tense in tensile strength or "slowness" and the pressure to overcome this dynamic viscosity. The regression equation is given by Sheer = 0.323 + 1.50 Strain. As can be judged from the squared correlation, the entire structure reflects a strong linear relationship. Decomposing it by means of an ANOVA verifies a powerful systematic effect.

Figure 1 shows the transformation of the obtained measures into a log-log co-ordinated space. The displayed functions depict the Strain in the first and the sheer in the second quadrant. The plot of Figure 1 shows differences in the potential of action (1st Qtr = X-axis). There is also much pressure, i.e. force (2nd Qtr. = Y-axis) which underlines a certain degree of defensiveness in writing style.

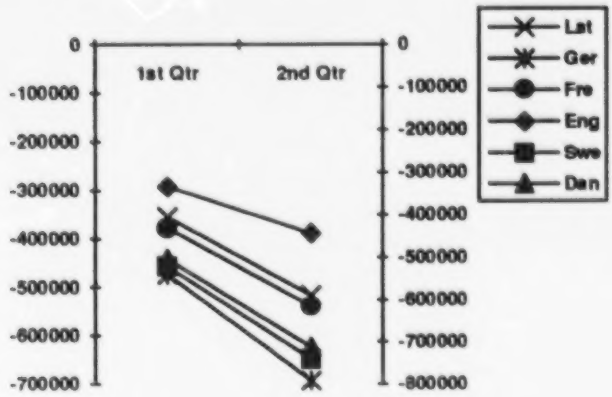
Table 1.

Processing Potential and the Tense in Tensile Strength of the Metaphysical Cube

Regression Predictor	Coefficient	Stdev.	t-ratio	p	R-sq.
Constant	0.3234	0.4338	0.75	0.497	
Strain	1.4961	0.0999	14.97	0.000	.982
ANOVA					
Source	DF	SS	MS	F	p
Regression	1	7.4980	7.4980	224.22	0.000
Error	4	0.1338	0.0334		
Total	5	7.6317			

Figure 1.

The Decomposed Linear Relations between the Potentials of Action and Processing



The English text is marked by an expression of a high degree of tension which can be conceived as "Defensive Thinking". High processing potential forces the text in a certain direction. The opposite holds for the German text. The expressed strain is considerably lower. Relaxed writing may easily be conceived of as capability of adapting to change or a variety of circumstances. Flexibility and a stretchable fabric mode of texture points toward a high degree of interwoven strands of structure lying in the texture of this text. Between these extremes strain and sheer have different values for different structural joints and these distort the Metaphysical Cube of the respective text to various degrees. The displayed relations show some other interesting overall effects. With respect to their strain and sheer the Latin and French texts parallel each other. The same relationship holds between the Swedish and Danish texts. Moreover, the plot discerns a grouping of the German, Swedish and Danish Texts on one hand and the French, Latin and English on the other.

The Kinematics of Text Building

If the textual agents and the textual objectives were associatively related and randomly (uniformly) distributed like propositional statements are exp..:ted to be distributed over an entire questionnaire, a path would be a straight line and consequently, configurational analysis would indicate the absence of structure. Before the configurational properties of a particular version will be discussed, it may be instructive to provide a physical account of the distances between agents and objectives. The time-dependent and periodic oscillatory processes involved in defining the critical value of the break-points for merging and branching characterising the text versions are reproduced in Table 2.

Table 2.

Grouping and Branching within the Language Space

Figure Group	Fused	Branched	Ground Group	Fused	Branched
LAT					
2	1&5	2.70	2	3&1	1.60
3	1&14	1.90	3	2&5	1.00
4	1&12	1.85			
5	1&3	1.75			
6	1&10	1.00			
GER					
2	1&9	3.55	2	2&1	1.78
3	1&2	2.71	3	3&5	1.00
4	1&6	2.31			
5	1&15	1.83			
6	1&21	1.00			
FRE					
2	1&14	2.80			
3	1&9	2.70			
4	1&17	1.90			
5	1&6	1.85			
6	1&2	1.75			
7	1&13	1.00			
ENG					
2	1&16	1.96	2	1&5	2.61
3	1&13	1.95	3	1&11	1.84
4	1&8	1.93	4	1&3	1.71
5	1&6	1.90	5	1&10	1.00
6	1&5	1.84			
7	1&3	1.71			
8	1&15	1.00			
SWE					
2	1&11	3.60	2	1&7	2.82
3	1&18	2.76	3	1&11	1.00
4	1&9	2.63			
5	1&8	1.83			
6	1&22	1.00			
DAN					
2	1&18	3.51	2	1&5	2.61
3	1&13	2.35	3	1&12	1.82
4	1&15	1.89	4	1&14	1.00
5	1&5	1.85			
6	1&17	1.00			

On the basis of the distance matrices set up, a maximising objective function, expressed as a minimum loss of information or, conversely, as a minimum increase in the Error Sum of Squares (ESS) has been computed as shown in Table 2. The values refer to Ward's (1963) Error Sum of Squares (ESS) whose role is to indicate minimal loss of information. The values of the ESS coefficients have a distribution which is used to identify the behaviour of the language system.

The numbers of the fused patterns indicate the first row of those two groupings that are united. Only unique patterns of strings are processed and averaged. The averaging has caused variations in the assemblies as well as their similarity as indicated by their prototypical naming (Appendix 2). Compared over the different versions, cycle by cycle show that the numbers differ. This is the result of the differences in local and global textual conditions. Local conditions seem to operate in the assemblance of individual strings making spacing different from timing. The succession points toward some differences in the dynamics of the kinetics of the texts. If the indicated differences in "text mass" and "text length" have established differences in scale value, this would mark dissimilarity in complexity and variety of the measured points. By relating a final state to an initial state evolving in the neighbourhood of each other the needed transport processes are produced. These give rise to a course or path containing a point of attraction, i. e. a singularity.

This clustering approach has the mathematical convenience of providing a rational zero, namely the dissimilarity of two identical patterns of strings. Because of the dimensionless nature of the used measure of distance, it is directly associated with space and the definition of the states of the system as described by their analytical concepts. Their names are determined on the internal frame of reference made up by the features defining the patterns constituting the clusters. The additive dissimilarity of patterns up to a point, eliminates the limitations associated with frequency distributions. Due to conditionally periodic oscillations these patterns are hybrid, but may be seen as a reflectant of ecological information. The prototypical naming of the clusters presented in Appendix 2, abstract experience and imagination from the patterns of strings agglomerated within the respective grouping. In general terms, sustained displacement of patterns of strings is in itself a result of reversible thermodynamic processes, but they are irreversible and invariant over frequency variations. A decision on the minimally sufficient number of states implies a decision on the number of natural groupings or clusters. The degree of dissimilarity can be investigated on an overall measure of significance (Tab. 3), because affinity and structural configuration have a common basis. But critical theoretical knowledge is required, if this basis shall contribute valuable qualitative properties to the measurement of thought. Any internal criterion has to be based on mathematical assumptions that vary in relation to the criterion chosen. The criterion focused upon is the significance criterion ($P(t<T)$) for the t-test. Levels of significance may be chosen with respect to a step-by-step clustering or based on the total configuration at a certain moment in a cyclic process. Alternatively, one can chose to rely on an obvious break in the classification (ESS = 1.00 in the present study) or base his decision on both.

Table 3.

Statistical Description of Proper Agent-Objective Coordination

Version	Block		O-groups		A-groups	
	n	%	n	P(t<T)	n	P(t<T)
LAT	17					
Figure	15	88	5	.054	5	.146
Ground	05	29	2	.188	2	.175
Means	00	00				
Goal	01	06				
GER	24					
Figure	22	92	5	.064	5	.170
Ground	09	38	2	.126	2	.096
Means	01	04				
Goal	01	04				
FRE	21					
Figure	18	86	6	.049	6	.254
Ground	11	52				
Means	02	10				
Goal	01	05				
ENG	21					
Figure	17	81	7	.028	7	.078
Ground	12	57	4	.085	4	.205
Means	04	19				
Goal	01	05				
SWE	28					
Figure	22	79	5	.063	5	.241
Ground	13	46	2	.083	2	.083
Means	00					
Goal	02	07				
DAN	27					
Figure	22	81	5	.050	5	.107
Ground	14	52	3	.087	3	.110
Means	02	07				
Goal	01	04				

Text building behaviour at the kinetic level co-ordinates and chains textual elements. At the kinematic level these elements are structured. The goal of the discussion in the present section is to compare the different text versions with respect to their macroscopic properties. Before the configurational properties of a particular text can be discussed, it may be worthwhile to remember that any particular organisation of singularities marks a qualitatively mode. As noted, time-dependent periodic oscillatory processes are involved in the definition of critical break-points. This is a result of differences in local and global textual conditions. The local conditions operating in the agglomeration of individual strings into clusters may explain

why the nearly identical text versions come to differ in structural similarity. Similarity and differences will be demonstrated on the basis of the relations holding between the clusters presented in Table 4.

Table 4.

Correspondence in Collinear Clustering of Patterns of Strings of Graphemes

Latin	German	French	English	Swedish	Danish
C1	C1	C1	C1	C1	C1
C2		C2			
C3	C4		C7		C5
C4					
C5	C5	C3	C4	C2	
	C2				C4
		C6	C5	C5	
	C3				
		C4	C6	C4	C3
		C5	C3	C3	
			C2		C2

The agglomeration of patterns of strings has caused a certain degree of similarity in and between the groupings. Grouping is the result of intentional text building behaviour which is co-operative and macroscopic. The grouped elements have been differentiated into patterns of strings but they are structurally whole. Therefore, changes in one single pattern can enforce changes in a whole series of distant others, pointing toward a high degree of structural individuality and differentiation. On the other hand, closely co-ordinated but hybrid patterns may merge. Thus, change and non-change depend on achieved differentiation in the particular forms of the text and on the twisting and twining of the differentiated patterns.

To summarise, text building behaviour at the microscopic level co-ordinates and chains textual elements, but at the macroscopic level it produces structures and functions. It is only the Kantian schema that can mark the structural and functional similarities. The a-component of the Schema determines the degree of variability in the nesting and interlocking property. The a-component is functionally specific, because its function is linking rather than preserving any particular agglomeration of patterns it happens to be involved in. Thus, the organisational lay-out of text is not the primary information provider.

Extraction of Informational Invariants

Organizationally, text can be viewed as a very complex system. Dynamical and composed of functionally rich textual elements, it is determined by very many degrees of freedom. Some of the textual elements may be judged to be more fundamental than others in providing information, but there is no information from which more complex forms can be calculated. The premise is, that the information in the textual medium is sufficient to account for what remains invariant over textual changes. By transiting through the terminal states of the Metaphysical Cubes (Fig. 2-7) it will be demonstrated to what degree the variable states characterising the versions have changed in their relations. Differences in the coordination of the changes in the textual elements constituting the assembly escapements are depicted by the respective path. This means that new linkage relations have been established between the terminal states of one version, and existing relations have been broken within another. A path is described by termini that mark the limits where analytical concepts are transformed into synthetic relations. Terms are indicated by italics. Extracting the informational invariants

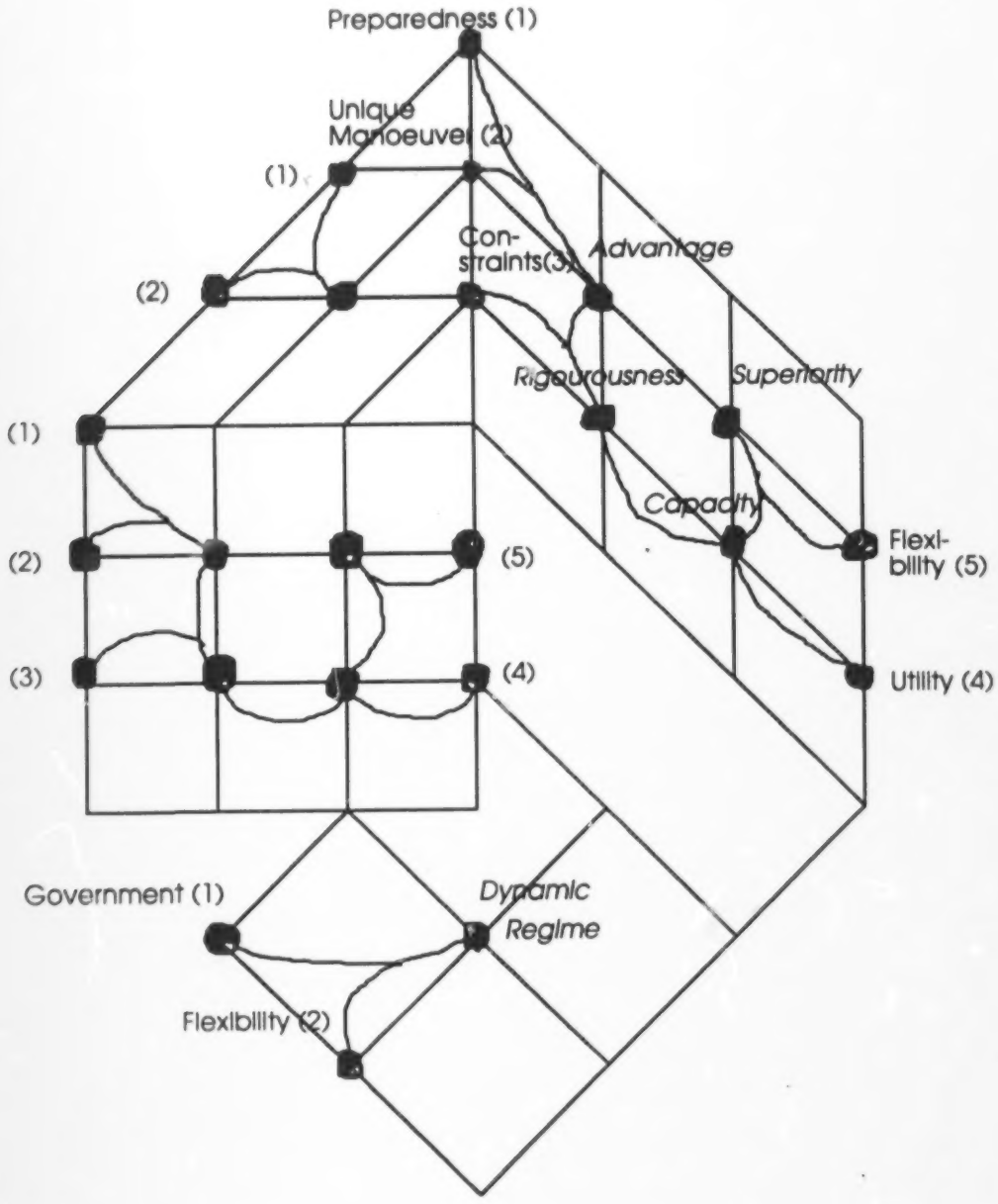
underlying the basic theme of a text can be seen as a continuous displacement through which the transformational invariants can be detected. Moreover, the taken path specifies the nature of change What is invariant of a thematic structure undergoing the change can be reflected and named. By naming the path identity is named.

The Metaphysical Cube (Fig. 2) presents in the background the Figure component. The initial terminal state (1) of that component is named "Preparedness". This name puts emphasis on one's readiness for taking action toward some specific event or upcoming dangerous situations. The nature of one's willingness to act becomes transformed when the process enters the next terminal state (2). This state is named "Unique Manoeuvre" which addresses uniquely developed skill and dexterity in movement. The result is a virtual or "meta-physical" state whose terminus indicates the quality of having an *Advantage*, i.e. of being in a relatively favourable position conducive to success. This is the critical point in the information flow where the two orthogonal states become co-ordinated and formed into a path. Viewed the other way around, it is the critical point where particular agglomerations of patterns of strings divide or split. This is the dynamic aspect of the AaO formula which is most amazing, because an unexpected arising of a structure of thought can be discussed as naturalised intentionality. Represented by a singularity, the first established Metaphysical state becomes transformed by the following terminal state (3) which is named "Constraints". Restricting or dictating the possible actions taken by others in order to take advantage of one's position requires an effort to be put into behavioural conduct. This effort develops naturally into *Rigourousness* which is the second Metaphysical state of the Figure component. Strictness in conduct determines how the rules of behaviour of a particular civilisation have to be conceived. The following terminal state (4) assigns import to "Utility". Its prototypical content implies efficiency in behavioural as well as functional control. *Capacity* as the resulting Metaphysical state marks the relational property of being amenable and accountable. When this Metaphysical state is transformed by "Flexibility" (5) the result gives expression to people that have the capacity of being highly responsive both to authority and to changing conditions which makes them superior to others. *Superiority* as the final metaphysical state gives expression to the conviction held since Renaissance that Tacitus has glorified the people up North with the purpose to give warning to the upcoming danger threatening Rome (Önnerfors, 1960, pp. 23-24).

The analysis that follows is based on the Ground component represented at the bottom of the Metaphysical Cube. This component consists of a qualitative distinct gradient characterising the reasoning which means stating the ground for the Figure component. The concentration of attractants over their flow gradient has resulted in two states expressing the realism. The name of the initial state (1) is "Government" and determines the enforcement of rules and regulations on the people. By transiting from this state to the second and final state (2), namely "flexible" execution and control. Thus, the process of administration produces the metaphysical state *Dynamic Regime*. This terminus may now be related to the outcome of the Figure component. It is a striking result how well *Dynamic Regime* supports *Superiority*.

Figure 2.

The Metaphysical Cube of the Operating Structural Relations in Latin



The Ground clearly supports the figuration of a "causal efficacy of purpose" whose significance points toward the conception of a civilisation that has the capacity of producing the desired effect. Thus, powerfulness or effectiveness is in the focus of attention, because it constitutes a potentially **threatening** outlook.

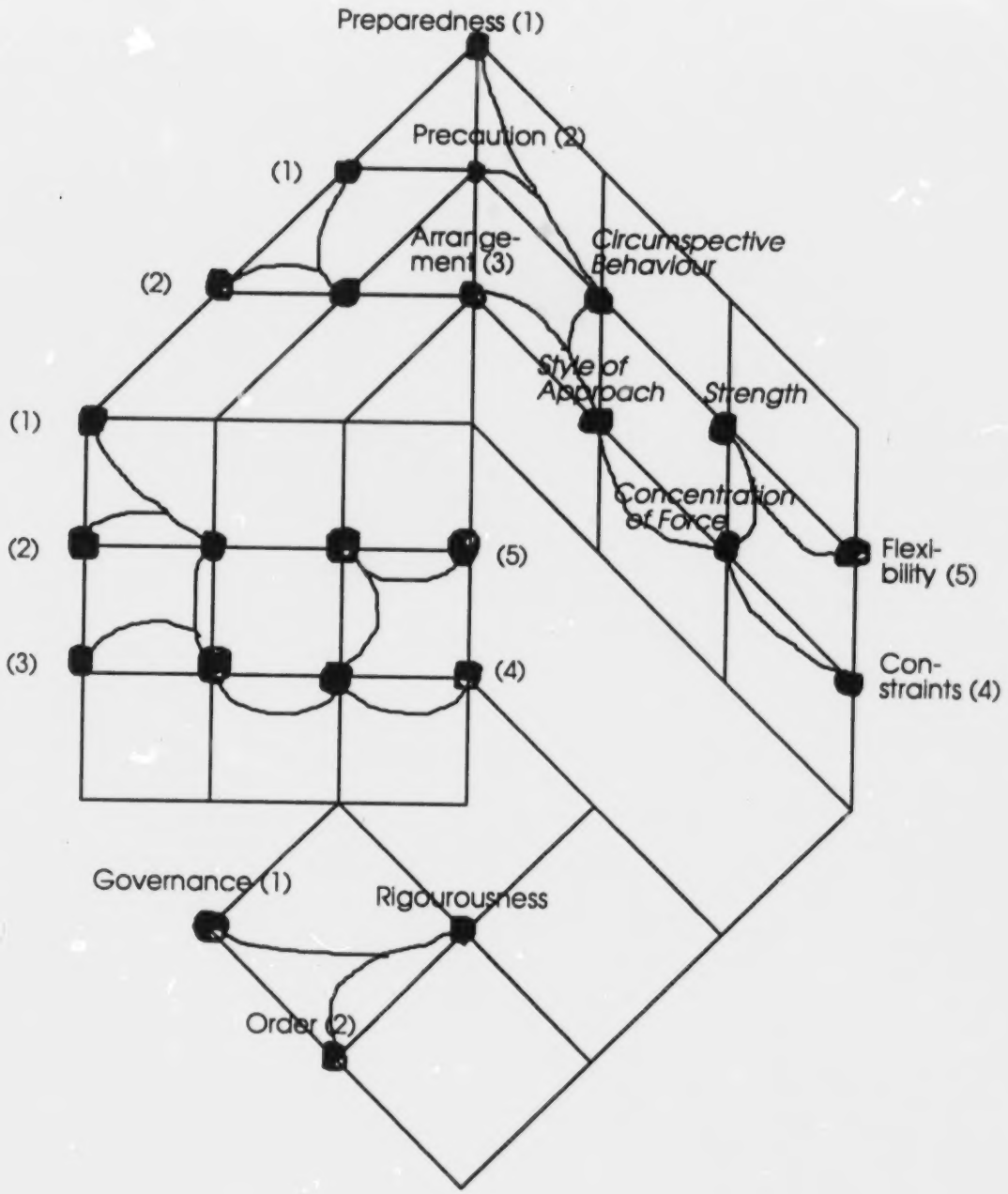
At the foreground and the top of the Metaphysical Cube the figures enclosed in parentheses show that the paths of back- and foreground as well as bottom and top are identical. This cooperativity implies that perspective and objective structure is a particular case of resource use. The pendular procedure has extracted a symmetry relation between perspective and objective invariants. This means that a redistribution of conserved information into a uniform symmetric distribution has taken place. The strength of the resulting identity relations is attributed to the minimal set of physical constraints necessary for the establishment of conservational invariance. Conservation of invariance under transformation specifies completeness and consequently conservational closure. No irreversible flows have driven the perspective away from its figural or grounding equilibrium. The decisive conclusion is that flows at the kinetic level show very little instability.

As previously stated, each topological distinct layout of singularities is associated with a qualitatively distinct macroscopic organisation. The following cube (Fig. 3) presents the co-operation between Figure and Ground of the German version. A comparison of Latin with German becomes meaningful first through an approach that approximates the relationship among various parts of the unfolded paths. To compare the results of co-ordinate space transformations requires a standard frame of reference. By applying a minimally sufficient Cartesian mesh, behavioural aspects of these spaces can be compared point by point or section by section.

At a first glance both cubes show the same dimensionality with respect to intentional (horizontal) and orientational (vertical) lines. Formal identity can be concluded for these spaces. Though a second glance discloses differences in the naming of the terminal states and consequently in the terms of the established singularities. Despite of the identity of three out of five terminal states the terms differ, because of a difference in linkage of these states. When the already introduced first terminal state is transformed by taking the new state (2) "Precaution" into account, this would mean that actions are taken in advance with the purpose of protecting one-self against possible danger. With reference to the outcome of the original version, it can be stated that an aspect of danger enters into the formation of the first singularity with a radically different inclination. *Circumspective Behaviour* concerns the determination of possible dangerous events and circumstances. Paying close attention to danger implies its consideration in further action. Consequently, its transformation by "Arrangement" (3) puts this behavioural particularity into a deliberate order or relation that generates a certain *Style of Approach*. The way in which the action of coming close to dangerous situations are carried out is transformed by "Constraints" (4). This means that certain restrictions are put on possible actions. The result is a *Concentration of Force*. To direct one's potential of dealing with danger toward its conceived centra, demonstrates an ability to regulate behaviour. Intimately connected to this concern is the final terminal state (5) which reintroduces "Flexibility" as an ability of being responsive to change and capable of varying one's measures. As a consequence, *Strength* is the result of this transformational step. This is so, because the originators of the German version have incorporates a difference in intentionality. This intentionality governs the dynamics of the macroscopic process and patterns the introduction of exceptional constraints. As a result, the Suiones are characterised as people that is capable of determining present and future behaviour by their own will. The nature of this self-determination emerges in the Ground supporting the structure of this Figure.

Figure 3.

The Metaphysical Cube of the Operating Structural Relations in German



"Governance", i. e., the act of exercising a predominating influence on others, is transformed by the terminal state of "Order" which forms into *Rigourousness*. This is a basic behavioural quality and means strictness in conduct, judgement and practice. Probably founded on a unique understanding of strategic and tactic movements unparalleled by others, the Suiones are seen to exhibit an unitary property in their activities pointing toward a particular firmness in character. Inherent in this orientation is a deviation of the unfolding path toward obedience and the consequences of non-integrative behaviour. According to Önnerfors (1960, pp. 130, 135-136) terminological comments, common ownership of the means of production and subsistence was foreign to the Suiones. Rather emphasis was put on self-will and in modern terms on domination. Therefore, it was especially important to foster functional self-control which gives an advantage in acting **united** when exposed to danger.

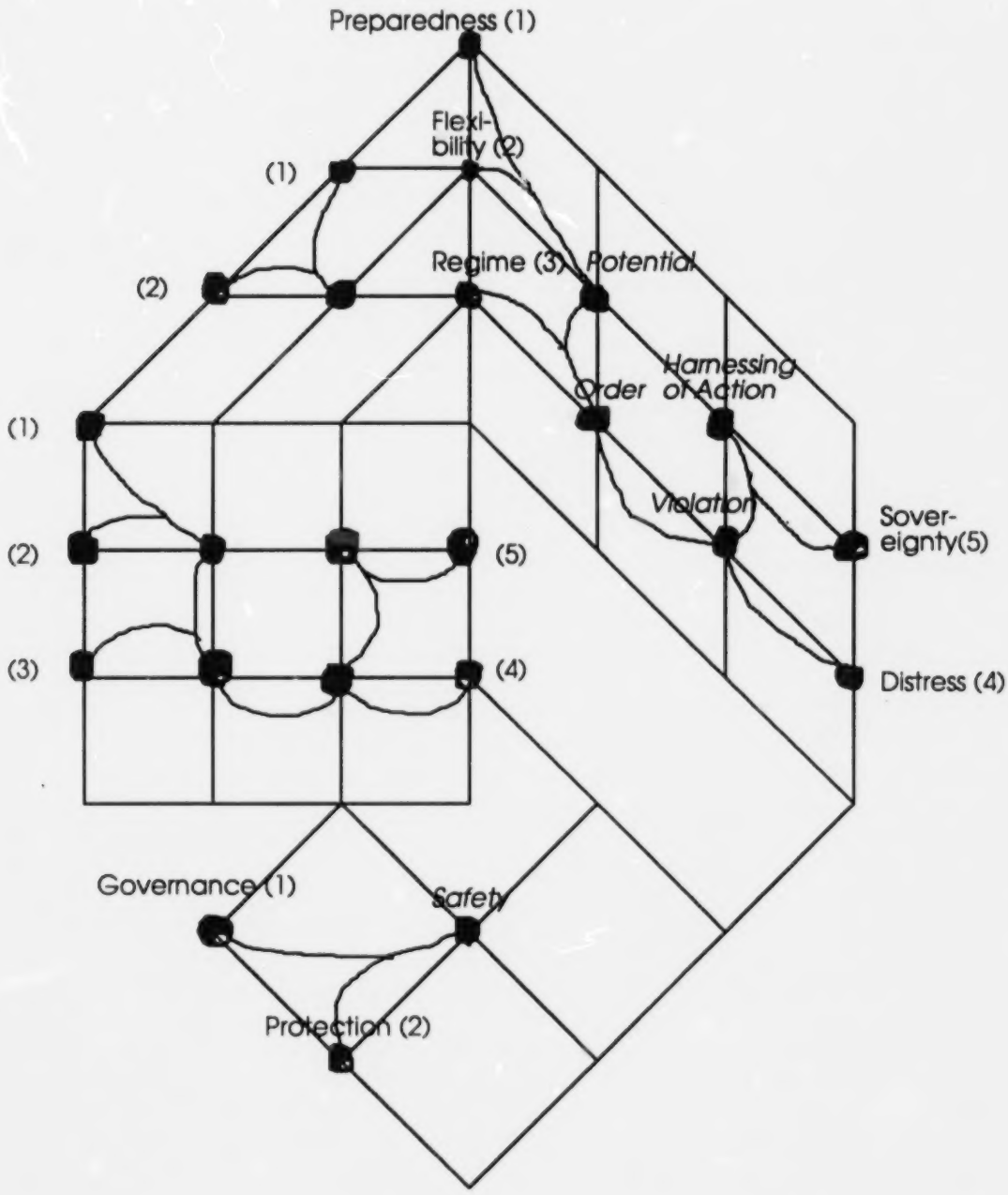
As mentioned in the paragraph on design and procedures, the Swedish version was prepared in close correspondence to the German one. It is therefore of special interest to see if and to what extent the emergent paths of Figure and Ground in the Metaphysical Cube (Fig. 4) mirrors the structural relations of Figure 3. Even in this case, dimensionality of the cube is identical with the foregoing two cubes. Though translating the German version into Swedish has caused dissimilarities in the averaging of patterns of strings. Only the first two terminal states are similar to the previous versions and the third one appeared in the Ground of the Latin version as final outcome. This means that the Swedish translator has been able to transform *Regime* into a state of the Figure. He has "figure out" the reason in the writing of Tacitus. Because "Preparedness" implies a conceptual integration of conceived "exposure to danger", it is especially important to observe what kind of orientation the unfolding path will follow. When this intuitive awareness of possible chains of catastrophic events gets transformed by one's ability to respond flexibly to changing conditions, possible, but yet not realised mental and physical strength form into the Metaphysical state of *Potential*. It encompasses a capacity for growth and development. When this state is transformed by the third terminal state, *Order* is generated. Putting "Distress" (4) on systems management through government has clear implications. Stress produces *Violation* and disorder. This state can be conceived of as an expression of anxiety, caused by a disregard of the rule of law. To keep safe in one's movement civilised behaviour has to be upheld. Exercised "Sovereignty"(5) takes a lead in avoiding anxiety causing events. By *Harnessing of Action* structures and relations within society are persevered and maintained.

Central for an understanding of this final singularity are the notions of "action" and "behaviour". Intentional behaviour is attracted by what others afford the observer not only in behaving well but also in actions that foster social security. This reasoning is bound to efficiency in steering and control of the people and their surroundings. Consequently, the two terminal states of the Ground component form the anchorage in the individual's perception and judgement of needed *Safety*. To summarise, conceived typical concerns of Swedes require an unique freedom from danger and hazard which has ensued a certain level of **safe-keeping** stipulations.

The dissimilarity in states and their couplings may be attributed to a "far-reaching butterfly-wing-stroke effect". It is said that the wing stroke can leave uneffected the near-by conditions surrounding the fly, but have far reaching effects in removed areas. Translating this effect into the present context may explain why patterns of strings causally related to states of the Ground component (Figs. 2, 3) appear as patterns of strings related to states of the Figure component (Fig. 4). Moreover, it explains why nearly identical textures come to differ as demonstrated. Text building behaviour at the microscopic level co-ordinates and chains textual elements but at the macroscopic level they are structured. Ecologically seen, the Ground component is the prerequisite for forming a Figure and it is therefore quite natural that Latin and German text builders differ from the Swedish one in that they are not being as close for having a clear Figuration of the context in question as a Swedish translator may have.

Figure 4.

The Metaphysical Cube of the Operating Structural Relations in Swedish



Change and non-change depend on achieved differentiation in the particular form of text. The Metaphysical Cube of the Danish version (Fig. 5) shows that twisting and twining of the differentiated patterns of strings have enforced changes in a whole series of structural relations. With the exception of terminal state (2) all others are already familiar. Though these states operate differently in the Danish case. Two have been established in the Latin, one in the German, and one in the Swedish version. This result introduces the Danish translator as perceiver and interpreter, who made use of a "mental coupling" between several text translations and the original. Furthermore, the produced Ground should be comprehended as a sensible expression of variations in schematising the reason of his concerns. From an ecological point of view, this Ground incorporates an elaboration of experiences with neighbours.

Because the initial state of being ready (1), especially for certain occasions requiring armed forces, becomes transformed by "Direction", the path of the Figure component begins with *Determination* as its first singularity. But being resolute or firm in purpose is followed by "Distress" (3) which means that firmness is upset through harassment. When difficult circumstances arise one is *Challenged* which calls for engagement in a contest or fight. "Precautious" (4) measures operate against the necessity of full use of one's ability, energy and resources in order to halt a provocation. Efforts made in advance to protect against possible dangerous situations lead to *Avoidance*. By establishing "Constraints" (5) the line or course along which things develop or move are altered, and thus the course of action to be taken by others can be restricted. This leads to the final outcome *Control of Dangerousness*.

It should be noted that the operating structural relations of the Danish version depart from the Swedish by being concentrated on monitoring procedures and a concern for skilled actions toward possible disturbances. This is the essential aspect of the structure which gets its support by the path in the Ground. In purely behavioural terms, the path gives expression for adapting to certain strategies of action that can regulate the movement of individuals or groups. This requires a capacity to deal with stress producing changes. Successful *Adjustment* is dependent on the position and movements of the individual within the limits set by the particular context. The implications of the Figure-Ground co-operation seem to be obvious. The Figure puts a stress on the contextual invariant specifying possible negative affordances for safe locomotion within one's familiar surroundings, while the Ground indicates a **relaxed** attitude in the judgement of the identified dangerousness of significant others.

Transition through the strict partially ordered variable states of the following Metaphysical Cube (Fig. 6) generates a path in the background that is longer than previous paths. Responding selectively to periodic influences has in the French case produced a higher order variable configuration that is different in topological layout. The initial two state variables are in prototypical content and succession similar to the Latin version. The next two states have appeared in same succession in the Swedish version while its last two states materialise in reversed order in the French version. The way in which these states are linked to the operating structural relations of the Swedish cube seem to suggest that the Swedish translator has been more influenced by the French texture than by the German. The emergent structural outcome creates a **rumour**, because the emergent singularities provide the key to "knowing" that seems to build on maxims, proverbs and sayings like: "From the furiousness of the Vikings, God preserve us". The orientation is here on the degree of (un)civilised behaviour. Haughtiness is consequently conceptualised by following public opinion (or morality) as it is manifested through behavioural semantics. It is an old aged expression of perceived invincible external forces determining the conditions of life. This rather general expressed contingency seems to have reinforced the production of the French imagination of unmitigated efficacy and readiness to embark in new ventures. Causing annoyance requires that one is closely observant and vigilant, i.e. watchful.

Figure 5.

The Metaphysical Cube of the Operating Structural Relations in Danish

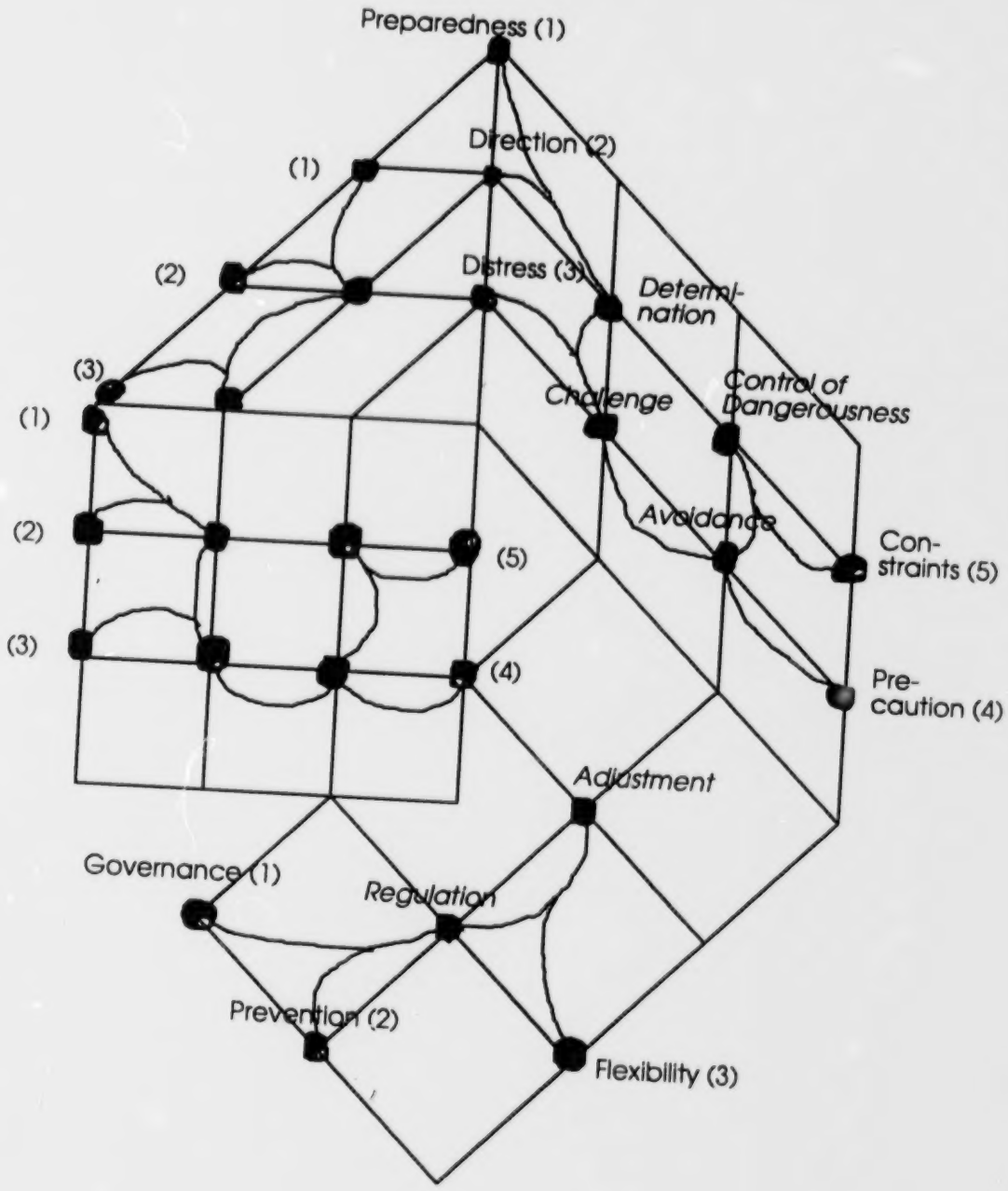
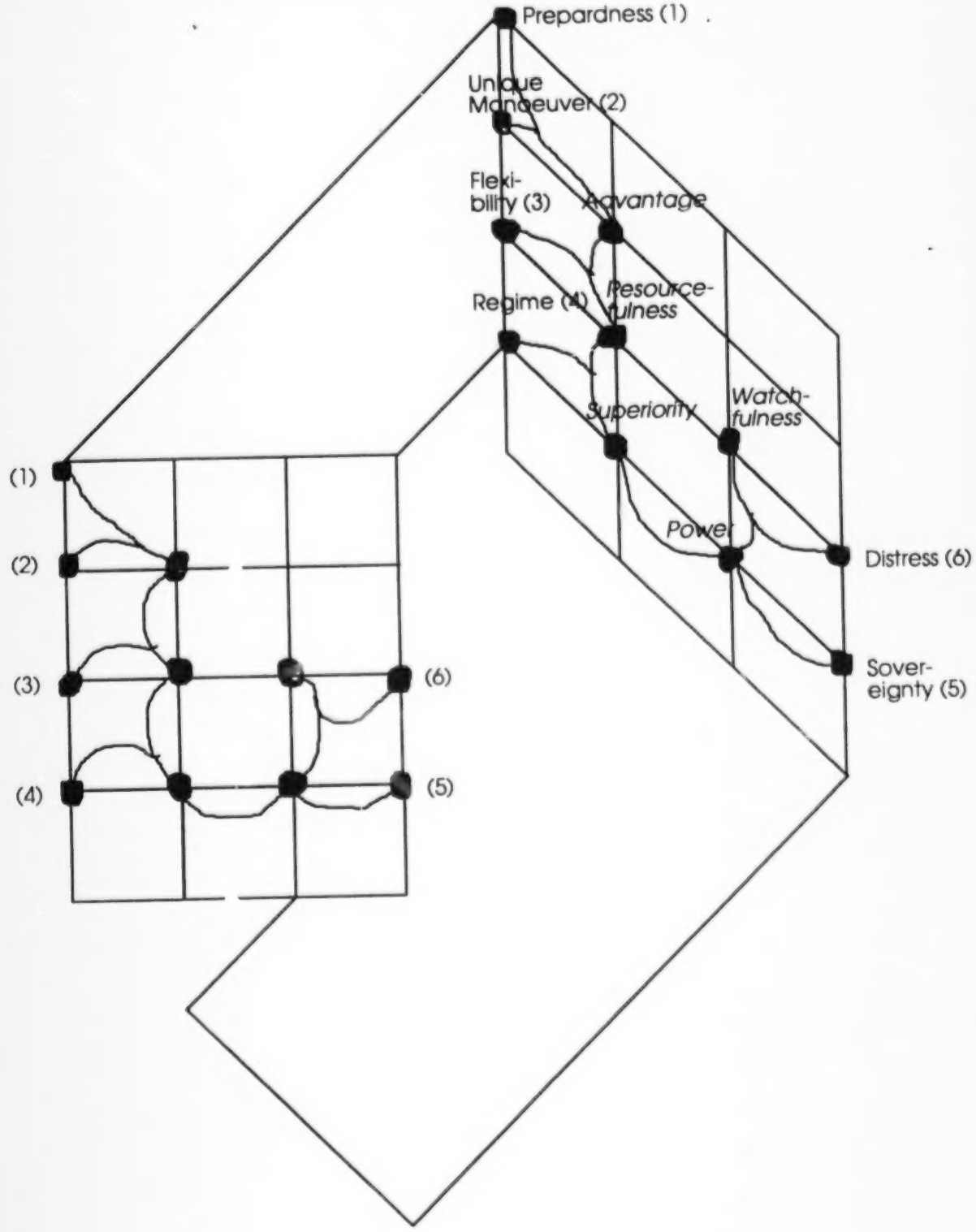


Figure 6.

The Metaphysical Cube of the Operating Structural Relations in French



The absence of a path in the Ground underlines the unreasonableness of the produced structure. The too widely diffused attractants relating the viewpoints of the Figure to reality means the absence of a demonstrable path and thus the crossing of a limit where text parse into text that is coupled to reality and text that is not.

The intuitive awareness of a chain of catastrophic events generated by the believed spirit of violence of the Vikings is in the Metaphysical Cube of the English translation (Fig. 7) transformed into a Figure component that is tied to reality. The path in the background puts a stress on control and adherence to a rule system with its obligatory content. Pre-eminence in position transformed by highly responsive behaviour results in the capacity for an energetic and rigorous exercise of power. Supremacy of authority in power transforms this capacity into a structure that is influencing the people to act in a certain manner. By undue physical, mental or emotional forces, the existing comprehensible order may be displaced. Intimately connected to this concern is an orientational sheer of the path toward effective means for constraining the behaviour of the violent. Successful probation and discriminative rule as well as role perception has its import for preventing the appearance of undue actions. Evidently, the orientation concerns the establishment of orderly and stable regions, distinguishable on enforcement of law and order.

The emerging final outcome of the Ground component underpins the Figuration of ***Safety*** which made up the Ground of the Swedish cube. From the English perspective, the Figure is grounded in a forward-looking concern. The path in the Ground determines a limit where perceived potential becomes dangerous. The defence of the fencer requires an effective establishment of monitoring procedures (a regime) that can be applied and maintained in a consistent manner to one individual as well as a whole civilisation. Means to prevent conceived danger picks up the requirement of skilled counter action and the significance of effective blocking of sudden, complex and mobile disturbances from the in- and outside.

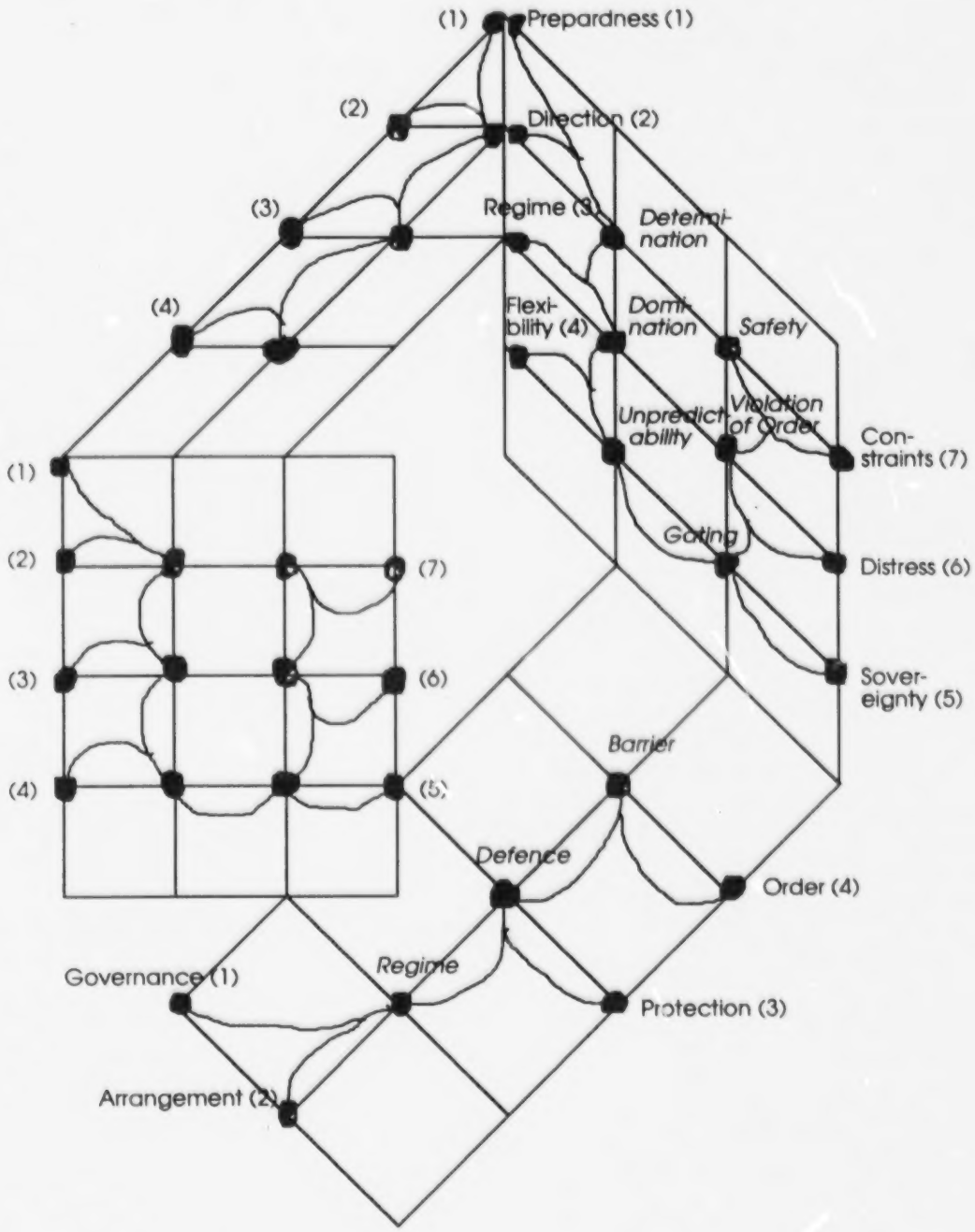
The Verbal Flow-to-Information Flow Coupling

At the physical level text building behaviour has to do with the production of verbal flows. The conserved quantities such as force and momentum of these flows have been utilised in Figure 1 for a kinetic description. By means of this description mechanical interactions can be observed. Interactions between forces and related momenta are not associated with the making and breaking of constraints. Only co-ordination of textual elements is the function of the couplings operating at this mechanical level of text building. In contrast, interactions at the macro flow level relate information to the force-moment interactions. This coupling of verbal flows to information flow structures has the potential of generating physical non-linear conditions. These are the sources of spontaneously evolving constraints. Based on this coupling, it should be possible to make predictions over level of analysis. Thus, on the basis of the very many cycles working at the micro level, it is expected that the macroscopic work cycles form a few properties that are in correspondence with strain and sheer operating on the micro level. This prediction can be made, because the process of establishing exceptional constraints influences the development of text both at the micro and macro level.

The degree of similarity addresses here (Tab. 5) the patterned forces and their correspondence with qualitative properties. Using the theoretical constructs of operating Strain and Sheer in the verbal flows makes it possible to predict the outcome of dissipative structures. The difference presented in Table 5 demonstrates the similarity between high stress and "objective" thinking on one hand and the other relaxed or calm attitude and "subjective" thinking.

Figure 7.

The Metaphysical Cube of the Operating Structural Relations in English



BEST COPY AVAILABLE

Table 5.

Co-operation between Micro and Macro Level

Strain/Sheer	Final Outcome	
High	*Figure*	*Ground*
English	Safety	Barrier
Latin	Superiority	Dynamic Regime
French	Watchfulness	None
Low		
Danish	Control of Dangerousness	Adjustment
Swedish	Harnessing of Action	Safety
German	Strength	Rigourousness

Preserving as much as possible of textural similarity does obviously not guarantee similarity in the verbal flow and even less in information flow. Constraints arising in the process of text building generate specific transition points that have their impact on the verbal flow and even more so on the establishment of morphological properties. What comes into view and focus of perspective in the first group is one's defence as vital for survival. The second group has made use of information that addresses in one way or the other the intention of behaviour as the vital component for survival. Therefore, it can be concluded that a change in the relationship between the perceiver and the perceived changes not only viewpoints but the perspective and consequently the extraction of informational invariants.

Discussion

Text as system structures verbal flows through its own internal processes. Supported by functional and dynamical relations between textual elements, boundary conditions produce oscillations by acting on these elements. The oscillations carry information on constraints acting on the forces that produce the verbal flows. In order to measure the kinetics of verbal flows, the concept of Volume-Elasticity was introduced (B. Bierschenk, 1993). Capturing the potential of a flow means measuring the work that had to be invested to bring textual elements into proper position. Therefore, the kinetics of a flow is a function of velocity which requires the introduction of a measure of length. As the process of co-ordinating textual elements moves along a trajectory, the potential of a flow is dissipated.

The processes that transform verbal flows into information are dissipative or frictional. Frictional processes produce adiabatic trajectories that characterise the flow of information. Founded on thermodynamic processes, these trajectories are independent of the mechanical processes at the kinetic level. In order to describe the stability of these trajectories, the concept of a Metaphysical Cube had to be introduced. This cube allows for the conceptualization of the organism-environment interaction within the language body as a virtual or meta-physical system. These circumstances identify the Metaphysical Cube with the sensibility of a person both to himself and his surroundings. Various deformations of this cube give information on the constraints that have operated.

In order to represent the micro regions of the cube it had been necessary to introduce a standard frame of reference. This allowed for the conceptualization of the Metaphysical Cube as spherical object with the singularities of topology as constituent elements standing in an invariant spatial relation. Each topological distinct layout of operating structural relations has been presented as a low-dimensional organisation. Because no symmetry-breaking instabilities could be observed in the extracted focus of perspective, it was concluded that the pendular clocking mode employed in the extraction, has resulted in an identity relation. The decisive idea is that propriospecific information flows with very little if any loss or degeneracy. The

resulting profiles of the perspectives have been indicated by dots and invariant numbering at the forefront and top of the cube. That these profiles support extracted exterospecific information should not be confused with the profiles of the Figures themselves.

The demonstrated methodological approach puts its stress on the morphogenesis of the conceptualizing processes in the analysed texts, that is on the "discontinuities" of the phenomenon. Winfree (1980, p 28) states: "Science comes in locating and making use of the discontinuities and discovery which of the many mechanisms underlie its particular character." The discovered AaO mechanism (B. Bierschenk, 1991) gives an opportunity to study successive transformations and the growth of limits of thought. The growing of limits is encompassed in the transformational changes. They are characterised by the terms describing the singularities, and thus fundamental in the definition of the transformed. By definition these limits are transformational which is necessary for the discovery of the presented structures of thought. By naming these structures, the growth itself has been named.

References

Bierschenk, B. (1984). *Steering mechanisms for knowability* (Kognitionsvetenskaplig forskning, No. 1). Lund, Sweden: Lund University, Department of Psychology. (ERIC Document Reproduction Service No. ED 264 246, TM 850 437)

Bierschenk, B. (1991). *The schema axiom as foundation of a theory for measurement and representation of consciousness* (Kognitionsvetenskaplig forskning, No. 38). Lund, Sweden: Lund University, Department of Psychology. (ERIC Document Reproduction Service, No. ED 338 650, TM 017 363)

Bierschenk, B. (1993). *The fundamentals of perspective text analysis* (Kognitionsvetenskaplig forskning, No. 45). Lund, Sweden: Lund University, Department of Psychology.

Bierschenk, I. (1992 a). *The pendular movement of text building* (Kognitionsvetenskaplig forskning, No. 42). Lund, Sweden: Lund University, Department of Psychology.

Bierschenk, I. (1992 b). *An excursion into the ecological co-ordinates of language space* (Kognitionsvetenskaplig forskning, No. 43). Lund, Sweden: Lund University, Department of Psychology.

Bruun, N. W., & Lund A. A. (Eds.) (1978). *Germaniens historie, geografi og befolk-ning* (The history, geography and people of Germania) (Vol. 1-2). Copenhagen: Wormianum. (Original work published, 1974)

Fehrle, E., & Huennerkopf, R. (1959). *Publius Cornelius Tacitus: Germania* (8th ed.). Heidelberg: Carl Winter Universitätsverlag. (4th ed. of original work published, 1882)

Gibson, J. J. (1966). *The senses considered as perceptual systems*. Boston: Houghton Mifflin.

Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.

Hartman, R. S. (1967). *The structure of value. Foundations of scientific axiology*. Carbondale and Edwardsville: Southern University Press.

Helmersson, H. (1992). *Main principles for perspective text analysis via the PC-system PERTEX* (Kognitionsvetenskaplig forskning, No. 41). Lund, Sweden: Lund University, Department of Psychology. (ERIC Document Reproduction Service No. ED , TM 019 324)

Hutton, M. (1958). *Publius Cornelius Tacitus: Germania*. London & Cambridge, MA.: The Loeb Classical Library. (Original work published, 1920)

Kugler, P. N., & Turvey, M. T. (1987). *Information, natural law and the self-assembly of rhythmic movement*. Hillsdale, NJ: Erlbaum.

Perret, J. (1962). *Tacite. La Germanie*. Paris: Société d' Édition les Belles Lettres. (Original work published, 1949)

Polanyi, M., & Prosch, H. (1975). *Meaning*. Chicago: University of Chicago Press.

Ward, J. H. (1963). Hierarchical grouping to optimise an objective function. *Journal of American Statistical Association, 58*, 236-244.

Winfree, A. T. (1980). *The geometry of biological time*. Berlin: Springer Verlag.

Önnerfors, A. (1960). *Cornelius Tacitus: Germania*. Stockholm: Natur och Kultur.

Appendix 1

LATIN, Chapter 44
Section 2
Suionum hinc civitates, ipso in Oceano, praeter viros armaque classibus valent. forma navium eo differt, quod utrimque prora paratam semper appulsui frontem agit. nec velis ministrant nec remos in ordinem lateribus adiungunt: solutum, ut in quibusdam fluminum, et mutabile, ut res poscit, hinc vel illinc remigium.
Section 3
est apud illos et opibus honos, eoque unus imperitat, nullis iam exceptionibus, non precario iure parendi. nec aram, ut apud ceteros Germanos, in promiscuo, sed clausa sub custode, et quidem servo, quia subitos hostium incursus prohibet Oceanus, otiosae porro armatorum manus facile lasciviunt: enimvero neque nobilem neque ingenuum, ne libertinum quidem armis praeponere regia utilitas est.

GERMAN
Dann kommen die Staaten der Swionen fuer sich im Weltmeer: sie verfuegen, abgesehen von Männern und Waffen, auch ueber starke Flotten. Die Gestalt ihrer Schiffe ist insofern eigenartig, als Bug und Heck gleich sind und das Schiff also immer eine Stirnseite zum Landen bietet. Die Schiffe werden nicht von Segeln getrieben. Man befestigt die Ruder nicht reihenweise an den Seiten. Lose, wie bei manchen Flusskähnen, und beweglich ist das Ruderwerk und kann bald hier bald dort eingesetzt werden. Bei diesem Volke steht auch der Reichtum in Ehren, und deshalb herrscht einer, schon ohne jede Beschränkung, mit dem unwiderruflichen Anrecht auf Gehorsam. Die Waffen stehen nicht zum beliebigen Gebrauch zur Verfuegung wie bei den uebrigen Germanen, sondern sind eingeschlossen und unter Aufsicht, und zwar eines Sklaven. Denn unerwartete Einfälle von Feinden verhindert der Ozean, ausserdem richten muessige Hände, wenn sie bewaffnet sind, leicht Unheil an. Es ist in der Tat nicht zum Nutzen eines Königs, dass ein Adliger oder Freier, ja nicht einmal ein Freigelassener die Waffen unter sich habe.

FRENCH
Ensuite, les cités des Suiones, dans l'Océan même, outre leurs guerriers et leurs armes, sont fortes par leurs flottes. La forme de leurs navires se distingue en ceci qu'aux deux extrémités une proue offre un avant toujours prêt pour aborder. Ils ne manoeuvrent pas à la voile et ne fixent pas les rames en rangée sur les bords; l'appareil en est libre, comme sur certains fleuves, et susceptible d'être tourné, selon les circonstances, d'un côté ou de l'autre. Chez eux, la richesse, elle aussi reçoit des honneurs; c'est pourquoi un seul exerce le pouvoir, sans limitations cette fois et avec un droit absolu à l'obéissance. Et les armes ne sont pas, comme chez les autres Germains, à la disposition de tous, mais enfermées sous bonne garde, voire sous la garde, d'un esclave, car l'Océan éloigne les surprises d'une incursion ennemie et une troupe oisive d'hommes armés tombe aisément dans la licence: c'est un fait que l'exclusion des nobles, des hommes libres, des affranchis même, quand il s'agit de surveiller des armes, répond à l'intérêt d'un roi.

ENGLISH
Beyond these tribes the states of the Suiones, not on, but in, the ocean, possess not merely arms and men but powerful fleets: the style of their ships differs in this respect, that there is a prow at each end, with a beak ready to be driven forwards; they neither work it with sails, nor add oars in banks to the side: the gearing of the oars is detached as on certain rivers, and reversible as occasion demands, for movement in either direction. Among these peoples, further, respect is paid to wealth, and one man is accordingly supreme, with no restrictions and with an unchallenged right to obedience; nor is there any general carrying of arms here, as among the other Germans: rather they are locked up in charge of a warder, and that warder a slave. The ocean forbids sudden inroads from enemies; and, besides, bands of armed men, with nothing to do, easily become riotous: it is not to the king's interest to put a noble or a freeman or even a freedman in charge of the arms.

SWEDISCH

Svionernas samhällen följa nu; de ligga ute i själva oceanen. Förutom i män och i vapen ha de sin styrka i flottor. Skeppens form avviker från den vanliga i det hänseendet, att en spetsig stäv åt båda hållen bildar en framstam, som alltid är klar för landning. Segel föra de icke, ej heller anbringa de åror i rad vid sidorna. Årorna äro lösa, såsom brukligt är på vissa floder, och det går att flytta dem från den ena sidan till den andra efter lägets krav. Hos dem hålles även rikedom i anseende; därför är det blott en som härskar, och här utan några som helst inskränkningar: hans rätt att kräva lydnad är ovillkorlig. Vapnen bäras icke allmänt och ständigt som hos övriga germaner utan hållas inlåsta under bevakning, som för övrigt skötes av en träl. Förklaringen härtill är den, att oceanen hindrar plötsliga fientliga anfall och vidare att beväpnade män som gå sysslolösa lätt slå över i självsvåld. Det ligger förvisso också i konungens intresse att inte sätta vare sig en ädling eller en friboren, nej, inte ens en frigiven träl som uppsyningsman över vapnen.

DANISH

1

Dernäst følger - ude i selve Oceanet - Svionernes stammer, der udover mandskab og våben også er stærke som flådemagt. Skibenes form afviger fra den gængse derved, at der er forstavn i begge ender, således at de altid har en landingsklar ende. Skibene betjenes ikke med sejl, og man lægger ikke årerne i række langs siderne, men årerne er - ligesom det bruges på visse floder - løse og kan vendes i den ene eller anden retning, som forholdene nu kræver det.

2

Hos dem sættes endog rigdom højt. Derfor har de kun en regent, der ikke har nogensomhelst indskrænkninger i sine beføjelser, men et ubetinget krav på lydighet.

3

Våben er ikke her, som hos de andre Germanere, almindelig udbredte, men de er låst inde og under bevogtning af en slave! Oceanet hindrer nemlig fjender i at foretage overraskelsesangreb, og lediggang får let beväbnede mänd til at gribe til våben. I hvert fald er det ikke i en konges interesse at lade nogen adelig eller fribåren for slet ikke at tale om en frigiven slave få opsyn med våbnene.

Appendix 2

This Appendix gives the results from sorting the surface features of the different text versions of Tacitus' Chapter 44, Sections two and three into groupings. By extracting and abstracting information from the clusters of elements, where membership is judged with reference to decreasing or increasing distance to a prototype (and not a stereotype) the indexed mode of organization can be named. The process of assigning a meaningful name to a group is exemplified with the assembled patterns of strings of the clusters as follows:

Figure component	*Literal English*
LATIN	C1: PREPAREDNESS
01. forma navium eo quod utrimque prora semper appulsui frontem	the shape of the ships in this respect at each end prow always to land the front
02. quod utrimque prora semper appulsui frontem	that at each end prow always to land the front
08. hinc vel illinc remigium	here or there the steering
09. nullis iam exceptionibus	no and now exceptions (with ... in)
10. nec arma, ut apud ceteros germanos in promiscuo, sed sub custode et quidem servo, quia subitos hostium incursus Oceanus	not arms, as among the other Germans in common, but under custody, and indeed by a slave, because sudden of foreigners incursion
11. Oceanus	Ocean
GERMAN	C1: PREPAREDNESS
01. die Staaten der Swionen	the states of the Suiones
03. insofern eigenartig als Bug	in this respect peculiar as bow
04. das Schiff immer eine Stirnseite zum Landen	that ships always a front to land
05. Die Schiffe nicht von Segeln	the ships not of sails
08. die Ruder nicht reihenweise	the oars not in rows
13. auch der Reichtum	also wealth
14. einer, schon	one, yet
17. der Ozean	the Ocean
18. muessige Hände	idle hands
21. Y	Y
FRENCH	C1: PREPAREDNESS
01. fortes	strong
04. pas	not
05. pas les rames	not the oars
08. selon les circonstances, d'un côté ou de l'autre	according to cirumstances from one side to the other
12. pas, comme	not, as
13. les surprises	sudden attacs
ENGISH	C1: PREPAREDNESS
	01. not merely arms and men but powerful fleets
	02. a prow
	07. for movement in either direction
	12. sudden inroads
	15. riotous

SWEDISH	C1: PREPAREDNESS
01. nu	now
02. ute	out
03. de sin styrka	they their power
04. en framstam	a prow
05. klar	ready
06. de icke	they not
07. de åror	they oars
17. den oceanen plötsliga anfall och vidare	the Ocean sudden hostile attacs and further
22. vare sig en ädling eller en friboren, nej, inte ens en frigiven träl som uppsyningsman	either a man of noble birth or a free-born no, not even an emancipated slave as overseer

DANISH	C1: PREPAREDNESS
01. - ude	- out
02. stärke som flådemagt	force as fleet power
03. forstavn	prow
04. en landingsklar ende	an end ready to land
06. ikke årerne	not the oars
07. - ligesom det	- just like it
09. det	it
10. de kun en regent	they only one regent
11. nogensomhelst indskränkningar	any restrictions whatsoever
12. ikke her, som	not here as
17. let beväpnede mand	easily armed men

LATIN	C2: UNIQUE MANOEUVERING
03. semper	always
04. nec velis nec remos in ordinem lateribus	neither sails nor oars in order to the sides

FRENCH	C2: UNIQUE MANOEUVERING
02. un avant toujours prêt	a prow always ready
03. Ils ne pas à la voile	They not with sails

LATIN	C3: CONSTRAINT
11. manus facile	hand facily
12. enimvero neque nobilem neque ingenuum	indeed and neither a noble nor the native

GERMAN	C4: CONSTRAINT
02. sie von Männern und Waffen, auch ueber starke Flotten	they of men and arms, also over strong fleets
19. sie leicht Unheil an in der Tat nicht zum Nutzen eines Königs, dass ein Adliger oder Freier leicht Unheil	they easily (do) mischief indeed not for the benefit of a king that a nobleman or freeman easily mischief

ENGLISH	C7: CONSTRAINT
	18. not to the king's interest
	19. a noble or a freeman or even a freedman

DANISH	C5: CONSTRAINT
21. det ikke	it not
22. nogen adelig eller fribåren	some noble or freemen
23. om en	of a
24. slave	slave
25. opsyn	charge
LATIN	C5: FLEXIBILITY
05. nec remos	nor oars
06. nec velis, ut in quibusdam fluminum et mutabile	neither sails as in certain rivers and movable
07. , ut ...	, as ...
GERMAN	C5: Flexibility
09. das Ruderwerk	the rudder-gear
10. bald hier bald dort	here and there
11. bald dort Bei diesem Volke auch der Reichtum in Ehren	there At this people also wealth in honour
12. Bei diesem Volke auch der Reichtum in Ehren	At this people also wealth in honour
FRENCH	C3: FLEXIBILITY
06. libre, comme	free, as
07. X selon les circonstances, d' un côté ou de l'autre	X according to cirumstances from one side to the other
ENGLISH	C4: FLEXIBILITY
	06. as on certain rivers, and reversible
	11. rather they
SWEDISH	C2: FLEXIBILITY
10. och X dem från den ena sidan till den andra efter lägets krav	and X them from one side to the other as things demand
11. dem	them
GERMAN	C2: PRECAUTION
15. sondern X und unter Aufsicht und zwar eines Sklaven	but X and under supervision and indeed of a slave
16. und	and
DANISH	C4: PRECAUTION
13. de inde og under bevogtning af en slave	them in and under custody of a slave
14. inde og	in and
FRENCH	C6: SOVEREIGNTY
09. des honneurs	mark of honour
10. pourquoi un seul	that's why only one
11. le pouvoir,	the power
ENGLISH	C5: SOVEREIGNTY
	09. accordingly supreme
	10. right

SWEDISH	C5: SOVEREIGNTY
11. det blott en därför, och här utan några som helst inskränkningar: hans rätt	it bare one hence, and here without any restrictions: his right
12. och här	and here
13. lydnad	obedience
14. ovillkorlig	unconditional
GERMAN	C3: ARRANGEMENT
06. nicht	not
07. Man die Ruder nicht reihenweise an den Seiten	One the oars not in row at the sides
ENGLISH	C2: DIRECTION
	03. forwards; they
	04. it
DANISH	C2: DIRECTION
05. Skibene ikke	the ships not
08. X i den ene eller anden retning	X in one or the other direction
FRENCH	C4: DISTRESS
16. un fait que l'exlusion des nobles, des hommes libres, des affranchis même	a fact that the exclusion of the noble, the freemen, and the freedmen
14. une troupe oisive d'hommes aisément dans la licence	a non-occupied body of men easily liberties in rashness
15. aisément	easily
ENGLISH	C6: DISTRESS
	14. men
	15. easily riotous
SWEDISH	C4: DISTRESS
19. plötsliga fientliga anfall	sudden hostile attacs
20. män	men
21. sysslolösa lätt	idle easily
DANISH	C3: DISTRESS
15. nemligen fjender	that is enemies
16. overraskelsesangreb	sudden inroads
FRENCH	C5: REGIME
17. il s' des arms	it is about arms
18. des armes	arms
ENGLISH	C3: REGIME
	05. oars
	10. any general arms here, as among the other Germans
SWEDISH	C3: REGIME
08. Årorna	the oars
15. Vapen icke allmänt och ständigt som	Arms not common and constant as
21. förvisso också	assuredly also

Ground component	*Literal English*
LATIN	C1: GOVERNANCE
03. hinc vel illinc reigium	here or there the steering
04. apud illos et opibus honos	among them also prosperity
05. sub custode, et quidem servo, quia subitos hostium incursus Oceanus	under custody, and indeed by a slave, because sudden of foreigners incursion the Ocean
GERMAN	C1: GOVERNANCE
02. von Segeln	with sails
03. an den Seiten	at the sides
04. in Ehren	in honor
05. ohne jede Beschränkung	without any restrictions
06. zum beliebigen Gebrauch zur Verfuegung wie bei den uebrigen Germanen	for optional use at the disposal as among the other Germans
07. unter Aufsicht, und zwar eines Sklaven	under supervision, and indeed by a slave
09. in der Tat nicht zum Nutzen eines Königs, dass ein Adliger oder Freier	indeed not for the benefit of a king, that a nobleman or freeman
ENGLISH	C1: GOVERNANCE
	01. in this respect
	02. at each end
	08. of arms here, as among the other Germans
	10. from enemies; and, besides bands of men, with nothing
SWEDISH	C1: GOVERNANCE
01. i själva oceanen	in the Ocean itself
02. i flottor	in fleets
03. från den vanliga i det hänseeendet	from the common in that respect
04. i rad vid sidorna	in banks to the sides
05. på vissa floder	on certain rivers
06. från den ena sidan till den andra efter lägets krav	from one side to the other according to the circumstances
08. utan några som helst inskränkningar: hans rätt	without any restrictions: his right
11. över i självsvåld	over into lack of discipline
13. över vapen	over arms
DANISH	C1: GOVERNANCE
01. i selve Oceanet - Svionernes stammar, der udover mandskab	in the Ocenan itself - the tribes of the Suiones, which besides men
02. fra den gängse derved	from the common in that
03. i begge ender, således	at both ends, such
04. i räkke langs siderne	in banks to the sides
08. i sine beföjelser, men et ubetinget krav på lydighet	in his authority, but an unrestricted demant for loyalty
09. hos de andre Germanere	by the other Germans
10. under bevogtning af en slave	under custody of a slave
11. i Oceanet overraskelsesangreb	in the Ocean sudden inroads
14. i en konges interesse	in the interest of the king

LATIN	C2: FLEXIBILITY
01. in ordinem lateribus	in order to the sides
02. in quibusdam fluminum, et mutabile	on certain rivers, and movable
DANISH	C3: FLEXIBILITY
05. på visse floder - löse	on certain rivers - detached
06. i den ene eller anden retning	in one or the other direction
07. Hos dem endog rigdom höjt	Among them also prosperity high
GERMAN	C2: ORDER
01. von Männern und Waffen, auch ueber starke Flotten	of men and arms, also over powerful fleets
08. an X in der Tat nicht zum Nutzen eines Königs, dass ein Adliger oder Freier	at X indeed not for the benefit of a king, that a nobleman or freeman
ENGLISH	C4: ORDER
	05. on certain rivers, and reversible
	06. Among these people, further, respect to wealth
	09. up in charge of a warder, and that warder a slave
	C2: ARRANGEMENT
	03. in banks to the sides
	04. of the oars
	C3: PROTECTION
	11. to the king's interest
	12. in charge of the arms
SWEDISH	C2: PROTECTION
07. Hos dem även rikedom i anseende	Among them also prosperity in respect
09. hos övriga germaner	among the other Germans
12. i konungens intresse	in the king's interest
DANISH	C2: PREVENTION
12. til lediggang til våben	to idleness up arms
13. til våben	up arms